ICF Consulting / Laboratory Data Consultants
Environmental Services Assistance Team, Region 9
1337 South 46th Street, Building 201, Richmond, CA 94804-4698
Phone: (510) 412-2300 Fax: (510) 412-2304

MEMORANDUM

TO: Chris Lichens, Remedial Project Manager
Site Cleanup Section 4, SFD-7-4

THROUGH: Rose Fong, ESAT Task Order Project Officer (TOPO) RF
Quality Assurance (QA) Program, MTS-3

FROM: Doug Lindelof, Data Review Task Manager
Region 9 Environmental Services Assistance Team (ESAT)

ESAT Contract No.: EP-W-06-041
Technical Direction Form No.: 00105001

DATE: June 26, 2006

SUBJECT: Review of Analytical Data, Tier 3

Attached are comments resulting from ESAT Region 9 review of the following analytical data:

Site:	Omega Chem OU2
Site Account No.:	09 BC LA02
CERCLIS ID NO.:	CAD042245001
Case No.:	32648
SDG No.:	Y19J8
Laboratory:	Envirosystems (ENVSYS)
Analysis:	Volatiles
Samples:	2 Groundwater Samples (see Case Summary)
Collection Date:	March 5, 2004
Reviewer:	Calvin Tanaka, ESAT/Laboratory Data Consultants

This report has been reviewed by the EPA TOPO for the ESAT contract, whose signature appears above.

If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.

Attachment

cc: Dan Slizys, CLP PO USEPA Region 3
Steve Remaley, CLP PO USEPA Region 9

CLP PO: [X] Attention [ ] Action

SAMPLING ISSUES: [ ] Yes [X] No

Data Validation Report

Case No.: 32648
SDG No.: Y19J8
Site: Omega Chem OU2
Laboratory: Envirosystems (ENVSYS)
Reviewer: Calvin Tanaka, ESAT/LDC
Date: June 26, 2006

I. CASE SUMMARY

Sample Information

Samples:	Y19J8 and Y19J9
Concentration and Matrix:	Low Concentration Water
Analysis:	Volatiles
SOW:	OLC03.2
Collection Date:	March 5, 2004
Sample Receipt Date:	March 6, 2004
Extraction Date:	Not Applicable
Analysis Date:	March 11, 2004

Field QC

Field Blanks (FB):	Not Provided
Equipment Blanks (EB):	Not Provided
Trip Blank (TB):	Not Provided
Background Samples (BG):	Not Provided
Water Blank (WB):	Not Provided
Field Duplicates (D1):	Not Provided

Laboratory QC

Method Blanks & Associated Samples:

VBLKFY:	Y19J8, Y19J9, and Y19J9DL; storage blank VHBLKFY

Tables

1A:	Analytical Results with Qualifications
1B:	Data Qualifier Definitions for Organic Data Review
2:	Calibration Summary

CLP PO Action

None.

CLP PO Attention

1. Results for some analytes are qualified as estimated (J) due to calibration problems (see Comments B, C, and D).

2. Results for 1,1,2,2-tetrachloroethane and 1,2-dibromo-3-chloropropane in sample Y19J9 are qualified as estimated (J) due to a deuterated monitoring compound (DMC) recovery problem (see Comment E).

Sampling Issues

None.

Additional Comments

Other than laboratory artifacts (approximate retention time of 7.7 and 11.1 minutes), tentatively identified compounds (TICs) were found in sample Y19J9 (see attached Form 1LCF).

The laboratory performed manual integrations on calibrations and samples due to incorrect auto integration. Manual integrations were reviewed and found to be satisfactory and in compliance with proper integration techniques.

This report was prepared in accordance with the following documents:

- ESAT Region 9 Standard Operating Procedure 901, *Guidelines for Data Review of Contract Laboratory Program Analytical Services (CLPAS) Volatile and Semivolatile Data Packages*;
- *USEPA Contract Laboratory Program Statement of Work for Analysis of Low Concentration Organic,* OLC03.2, December 2000; and
- USEPA Contract Laboratory Program National Functional Guidelines for Low Concentration Organic Data Review, June 2001.

II. VALIDATION SUMMARY

The data were evaluated based on the following parameters:

	Parameter	Acceptable	Comment
1.	Holding Time/Preservation	Yes	
2.	GC/MS Tune/GC Performance	Yes	
3.	Initial Calibration	No	B, C
4.	Continuing Calibration	No	B, D
5.	Laboratory Blanks	Yes	
6.	Field Blanks	N/A	
7.	Deuterated Monitoring Compounds	No	E
8.	Matrix Spike/Matrix Spike Duplicates	N/A	
9.	Laboratory Control Samples/Duplicates	N/A	
10.	Internal Standards	Yes	
11.	Compound Identification	Yes	
12.	Compound Quantitation	Yes	A, F
13.	System Performance	Yes	
14.	Field Duplicate Sample Analysis	N/A	

N/A = Not Applicable

III. VALIDITY AND COMMENTS

A. The following results, denoted with an "L" qualifier, are estimated and flagged "J" in Table 1A.

- All detected results below the contract required quantitation limits

Results below the contract required quantitation limits (CRQLs) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

B. Results for the following analytes are qualified as estimated due to low relative response factors (RRFs) in initial and continuing calibrations and are flagged "J" in Table 1A.

- Acetone, 2-butanone, 4-methyl-2-pentanone, 2-hexanone, and 1,2-dibromo-3-chloropropane in all samples, method blank VBLKFY, and storage blank VHBLKFY

Average RRFs were below the 0.05 validation criterion in the initial and continuing calibrations (see Table 2).

Detected results for the analytes listed above should be considered as the minimum concentrations at which these analytes are present in the samples. Where results are nondetected, false negatives may exist.

DMCs 2-butanone-d5, trans-1,3-dichloropropene-d4, and 2-hexanone-d5 also had RRFs below the 0.05 validation criterion in the initial and continuing calibrations (see Table 2). Quantitation of the analytes associated with these DMCs may have been affected by the low RRFs (see attached Table 9 from the Functional Guidelines).

The RRF evaluates instrument sensitivity and is used in the quantitation of target analytes.

C. Results for the following analytes are qualified as estimated due to large percent relative standard deviations (%RSDs) in the initial calibration and are flagged "J" in Table 1A.

- 1,1,2-Trichloro-1,2,2-trifluoroethane and methylene chloride in all samples, method blank VBLKFY, and storage blank VHBLKFY

Percent RSDs exceeded the ≤30.0% validation criterion for the analytes listed above in the initial calibration (see Table 2).

The initial calibration demonstrates that the instrument is capable of acceptable performance in the beginning of the analytical run and of producing a linear calibration curve.

D. Results for the following analytes are qualified as estimated due to large percent differences (%Ds) in the continuing calibration and are flagged "J" in Table 1A.

- Methylene chloride and isopropylbenzene in all samples, method blank VBLKFY, and storage blank VHBLKFY

%Ds exceeded the ±30.0% validation criterion for the analytes listed above in the continuing calibration (see Table 2).

The DMC vinyl chloride-d3 also had a %D that exceeded the ±30.0% validation criterion in the continuing calibration (see Table 2). Quantitation of the analytes associated with this DMC may have been affected by the high %D (see attached Table 9 from the Functional Guidelines).

The continuing calibration checks the instrument performance daily and produces the relative response factors (RRFs) for target analytes that are used for quantitation.

E. Results for the following analytes are qualified as estimated due to DMC recoveries outside QC limits and are flagged "J" in Table 1A.

{1,1,2,2-Tetrachloroethane-d2}

- 1,1,2,2-Tetrachloroethane and 1,2-dibromo-3-chloropropane in sample Y19J9

The DMC recoveries outside QC limits are shown below.

Sample	DMC	% Recovery	QC Limits
Y19J8	Benzene-d6	140	78-121
Y19J8	1,2-Dichloropropane-d6	132	84-123
Y19J8	Toluene-d8	122	77-120
Y19J9	1,1,2,2-Tetrachloroethane-d2	72	75-131

Detected results for affected analytes where DMC recoveries fell below QC limits may be biased low; where results are nondetected, false negatives may exist. For DMC recoveries that exceeded QC limits, only detected results for associated analytes are qualified. Recoveries for DMCs benzene-d6, 1,2-dichloropropane-d6, and toluene-d8 exceeded QC limits but results were not qualified because they were nondetects. The samples were not reanalyzed.

Surrogates (e.g., deuterated monitoring compounds (DMCs)) are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with DMCs prior to purging. DMCs

provide information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.

F. Sample Y19J9 was reanalyzed at a 10-fold dilution due to high levels of trichlorofluoromethane, 1,1-dichloroethene, 1,1,2-trichloro-1,2,2-trifluoroethane, trichloroethene, and tetrachloroethene that exceeded the calibration range. Results for these analytes are reported from the diluted analysis in Table 1A; results for all other analytes are reported from the undiluted analysis.

ANALYTICAL RESULTS
Table 1A

Case No. : 32648 SDG No. : Y19J8
Site : OMEGA CHEM OU2
Lab : ENVIROSYSTEMS, INC.
Reviewer : Calvin Tanaka, ESAT/LDC
Date : June 26, 2006

QUALIFIED DATA
Concentration in ug/L

Analysis Type : Low Level Water Samples For Volatiles

Station Location :	21			22			Method Blank			Storage Blank			CRQL								
Sample ID :	Y19J8			Y19J9			VBLKFY			VHBLKFY											
Collection Date :	3/5/2004			3/5/2004																	
Dilution Factor :	1.0			1.0			1.0			1.0											
Volatile Compound	**Result**	**Val**	**Com**	**Result**	**Val**	**Com**	**Result**	**Val**	**Com**	**Result**	**Val**	**Com**	**Result**	**Val**	**Com**	**Result**	**Val**	**Com**	**Result**	**Val**	**Com**
Dichlorodifluoromethane	0.50U			0.50U			0.50U			0.50U			0.50								
Chloromethane	0.50U			0.50U			0.50U			0.50U			0.50								
Vinyl Chloride	0.50U			0.50U			0.50U			0.50U			0.50								
Bromomethane	0.50U			0.50U			0.50U			0.50U			0.50								
Chloroethane	0.50U			0.50U			0.50U			0.50U			0.50								
Trichlorofluoromethane	0.50U			34		F	0.50U			0.50U			0.50								
1,1-Dichloroethene	0.50U			82		F	0.50U			0.50U			0.50								
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50U	J	C	69	J	CF	0.50U	J	C	0.50U	J	C	0.50								
Acetone	5.0U	J	B	5.0U	J	B	5.0U	J	B	5.0U	J	B	5.0								
Carbon Disulfide	0.50U			0.50U			0.50U			0.50U			0.50								
Methyl Acetate	0.50U			0.50U			0.50U			0.50U			0.50								
Methylene Chloride	0.50U	J	CD	0.50U	J	CD	1.2	J	CD	0.50U	J	CD	0.50								
trans-1,2-Dichloroethene	0.50U			0.50U			0.50U			0.50U			0.50								
Methyl tert-Butyl Ether	0.50U			3.6			0.50U			0.50U			0.50								
1,1-Dichloroethane	0.50U			0.48L	J	A	0.50U			0.50U			0.50								
cis-1,2-Dichloroethene	0.50U			3.0			0.50U			0.50U			0.50								
2-Butanone	5.0U	J	B	5.0U	J	B	5.0U	J	B	5.0U	J	B	5.0								
Bromochloromethane	0.50U			0.50U			0.50U			0.50U			0.50								
Chloroform	0.50U			18			0.50U			0.50U			0.50								
1,1,1-Trichloroethane	0.50U			0.50U			0.50U			0.50U			0.50								
Cyclohexane	0.50U			0.50U			0.50U			0.50U			0.50								
Carbon Tetrachloride	0.50U			0.50U			0.50U			0.50U			0.50								
Benzene	0.50U			0.50U			0.50U			0.50U			0.50								
1,2-Dichloroethane	0.50U			0.50U			0.50U			0.50U			0.50								
Trichloroethene	0.50U			57		F	0.50U			0.50U			0.50								
Methylcyclohexane	0.50U			0.50U			0.50U			0.50U			0.50								
1,2-Dichloropropane	0.50U			0.50U			0.50U			0.50U			0.50								
Bromodichloromethane	0.50U			0.50U			0.50U			0.50U			0.50								
cis-1,3-Dichloropropene	0.50U			0.50U			0.50U			0.50U			0.50								
4-Methyl-2-pentanone	5.0U	J	B	5.0U	J	B	5.0U	J	B	5.0U	J	B	5.0								
Toluene	0.50U			0.50U			0.50U			0.50U			0.50								
trans-1,3-Dichloropropene	0.50U			0.50U			0.50U			0.50U			0.50								
1,1,2-Trichloroethane	0.50U			0.50U			0.50U			0.50U			0.50								
Tetrachloroethene	0.50U			88		F	0.50U			0.50U			0.50								
2-Hexanone	5.0U	J	B	5.0U	J	B	5.0U	J	B	5.0U	J	B	5.0								
Dibromochloromethane	0.50U			0.50U			0.50U			0.50U			0.50								
1,2-Dibromoethane	0.50U			0.50U			0.50U			0.50U			0.50								

ANALYTICAL RESULTS
Table 1A

Case No. : 32648 SDG No. : Y19J8
Site : OMEGA CHEM OU2
Lab : ENVIROSYSTEMS, INC.
Reviewer : Calvin Tanaka, ESAT/LDC
Date : June 26, 2006

QUALIFIED DATA
Concentration in ug/L

Analysis Type : Low Level Water Samples For Volatiles

Station Location :	21			22			Method Blank			Storage Blank			CRQL								
Sample ID :	Y19J8			Y19J9			VBLKFY			VHBLKFY											
Collection Date :	3/5/2004			3/5/2004																	
Dilution Factor :	1.0			1.0			1.0			1.0											
Volatile Compound	**Result**	**Val**	**Com**	**Result**	**Val**	**Com**	**Result**	**Val**	**Com**	**Result**	**Val**	**Com**	**Result**	**Val**	**Com**	**Result**	**Val**	**Com**	**Result**	**Val**	**Com**
Chlorobenzene	0.50U			0.50U			0.50U			0.50U			0.50								
Ethylbenzene	0.50U			0.50U			0.50U			0.50U			0.50								
Xylenes (total)	0.50U			0.50U			0.50U			0.50U			0.50								
Styrene	0.50U			0.50U			0.50U			0.50U			0.50								
Bromoform	0.50U			0.50U			0.50U			0.50U			0.50								
Isopropylbenzene	0.50U	J	D	0.50U	J	D	0.50U	J	D	0.50U	J	D	0.50								
1,1,2,2-Tetrachloroethane	0.50U			0.50U	J	E	0.50U			0.50U			0.50								
1,3-Dichlorobenzene	0.50U			0.50U			0.50U			0.50U			0.50								
1,4-Dichlorobenzene	0.50U			0.50U			0.50U			0.50U			0.50								
1,2-Dichlorobenzene	0.50U			0.50U			0.50U			0.50U			0.50								
1,2-Dibromo-3-chloropropane	0.50U	J	B	0.50U	J	BE	0.50U	J	B	0.50U	J	B	0.50								
1,2,4-Trichlorobenzene	0.50U			0.50U			0.50U			0.50U			0.50								
1,2,3-Trichlorobenzene	0.50U			0.50U			0.50U			0.50U			0.50								

Val - Validity. Refer to Data Qualifiers in Table 1B.
Com - Comments. Refer to the Corresponding Section in the Narrative for each letter.
CRQL - Contract Required Quantitation LImit, N/A - Not Applicable, NA - Not Analyzed

D1, D2, etc. - Field Duplicate Pairs
FB - Field Blank, EB - Equipment Blank, TB - Trip Blank, BG - Background Sample

TABLE 1B

DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Low Concentration Organic Data Review," June 2001.

U	The analyte was analyzed for, but was not detected above the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.
L	Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
UJ	The analyte was not detected above the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.
R	The sample results are unusable. The analyte may or may not be present in the sample.

Table 2
Calibration Summary

Case No.: 32648
SDG No.: Y19J8
Site: Omega Chem OU2
Laboratory: Envirosystems (ENVSYS)
Reviewer: Calvin Tanaka, ESAT/LDC
Date: June 26, 2006

RELATIVE RESPONSE FACTORS (RRF)

	RRF	RRF
Analysis date:	1/14/04	3/11/04
Analysis time:	10:29-	09:50
GC/MS I.D.:	HP73F	HP73F
Analyte	Init.	Cont.
Acetone	0.039	0.025
2-Butanone	0.038	0.028
4-Methyl-2-pentanone	0.048	0.040
2-Hexanone	0.036	0.026
1,2-Dibromo-3-chloropropane	0.035	0.023
2-Butanone-d5	0.046	0.036
trans-1,3-Dichloropropene-d4	0.038	0.035
2-Hexanone-d5	0.015	0.010

PERCENT RELATIVE STANDARD DEVIATIONS (%RSD) AND PERCENT DIFFERENCES (%D)

	%RSD	%D
Analysis Date:	1/14/04	3/11/04
Analysis Time:	10:29-	09:50
GC/MS I.D.:	HP73F	HP73F
Analyte	Init.	Cont.
1,1,2-Trichloro-1,2,2-trifluoroethane	30.7	-----
Methylene chloride	36.9	+37.8
Isopropylbenzene	-----	-31.0
Vinyl chloride-d3	-----	-34.1

+ = RRF biased low; - = RRF biased high.

ASSOCIATED SAMPLES AND METHOD BLANKS

Initial, 1/14/04 and Continuing, 3/11/04:
Y19J8, Y19J9, and Y19J9DL; method blank VBLKFY; storage blank VHBLKFY

1LCF

LOW CONCENTRATION WATER VOLATILE ORGANICS ANALYSIS
DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Y19J9

Lab Name: ENVIROSYSTEMS, INC. Contract: 68W01044

Lab Code: ENVSYS Case No.: 32648 Client No.: SDG No.: Y19J8

Lab Sample ID: 04030821 Date Received: 03/06/04

Lab File ID: H73FS015 Date Analyzed: 03/11/04

Purge Volume: 25 (mL) Dilution Factor: 1.0

GC Column: RTX-624 ID: 0.18 (mm) Length: 20 (m)

Number TICs found: 4

	CAS NUMBER	COMPOUND NAME	RT	EST.CONC. (UG/L)	Q
1.		UNKNOWN	2.13	1.0	J
2.		UNKNOWN	2.20	0.84	J
3.		UNKNOWN	6.56	0.61	J
4.		~~UNKNOWN~~	~~11.11~~	~~0.75~~	~~JB~~
5.					
6.					
7.		SC, 043108			
8.					
9.					
10.					
11.					
12.					
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Table 9. Volatile Deuterated Monitoring Compounds and the Associated Target Compounds

Chloroethane-d5 (DMC)	1,2-Dichloropropane-d6 (DMC)	1,2-Dichlorobenzene-d4 (DMC)
Dichlorodifluoromethane	Cyclohexane	Chorobenzene
Chloromethane	Methylcyclohexane	1,3-Dichlorobenzene
Bromomethane	1,2-Dichloropropane	1,4-Dichlorobenzene
Chloroethane	Bromodichloromethane	1,2-Dichlorobenzene
Carbon Disulfide		1,2,4-Trichlorobenzene
		1,2,3-Trichlorobenzene

Bromoform-d (DMC)	trans-1,3-Dichloropropene-d4 (DMC)	Chloroform-d (DMC)
Dibromochloromethane	cis-1,3-Dichloropropene	1,1-Dichloroethane
1,2-Dibromoethane	trans-1,3-Dichloropropene	Bromochloromethane
Bromoform	1,1,2-Trichloroethane	Chloroform

2-Butanone-d5 (DMC)	1,1-Dichloroethene-d2 (DMC)	2-Hexanone-d5 (DMC)
Acetone	trans-1,2-Dichloroethene	4-Methyl-2-pentanone
2-Butanone	cis-1,2-Dichloroethene	2-Hexanone

Vinyl Chloride-d3 (DMC)	Benzene-d6 (DMC)	1,1,2,2-Tetrachloroethane-d2 (DMC)
Vinyl Chloride	Benzene	1,1,2,2,-Tetrachloroethane
		1,2-Dibromo-3-chloropropane

1,2-Dichloroethane-d4 (DMC)	Toulene-d8 (DMC)
Trichlorofluoromethane	Trichloroethene
1,1-Dichloroethene	Toluene
1,1,2-Trichloro-1,2,2-trifluoroethane	Tetrachloroethene
Methyl Acetate	Ethylbenzene
Methylene Chloride	Xylenes (total)
Methyl tert-Butyl Ether	Styrene
1,1,1-Trichloroethane	Isopropylbenzene
Carbon Tetrachloride	
1,2-Dichloroethane	